

REMARKS

The Applicants appreciate the Examiner's thorough examination of the subject application. Claims 9-12 are pending. Claim 9 has been amended. Applicants request reconsideration of the subject application based on the following remarks. No new matter has been introduced by the instant amendments.

Claim 9 has been amended. Support for the amendments can be found throughout the specification and in the original claims of the application. For example, the amendments to claim 9 can be found at least at page 6, lines 13-17, page 9, lines 10-16, Examples 2 and 5 on page 34 of the application as filed. Further support for the amendments can be found at page 4, lines 14-18, page 10, line 22, to page 11, line 4, and at Examples 10 and 11 of the application as filed.

Amendment of any claim herein is not to be construed as acquiescence to any of the rejections/objections set forth in the instant Office Action, and was done solely to expedite prosecution of the application. Applicants make these amendments without prejudice to pursuing the original subject matter of this application in a later filed application claiming benefit of the instant application, including without prejudice to any determination of equivalents of the claimed subject matter.

Claims Rejections – 35 U.S.C. §112

Claims 9-12 were rejected under 35 U.S.C. §112, second paragraph, allegedly because it is unclear whether “graphite material” refers to the coated graphite or to the graphite which forms the core of a coated material. Applicants have amended claim 9 to include the phrase “which forms the core of a coated material,” as suggested by the Examiner. The rejection is thus overcome and Applicants respectfully request withdrawal of the rejection.

Claims Rejections – 35 U.S.C. §102

Claims 9, 11, and 12 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Yamada et al. (US 6,040,092). The Office Action asserts that Yamada discloses secondary lithium batteries, wherein the coated graphite material satisfies Applicants' claim 9 definition. It is further asserted that the Yamada reference teaches Applicants' claim 11 and claim 12 "R" value subject matter.

Claim 9 as amended does not encompass any of the teachings provided by Yamada. Specifically, embodiment 11 of Yamada is not taught by the instant invention. Applicants have amended claim 9 to incorporate the surface area (y) formula (I) definition. More particularly, claim 9 as amended provides for a surface area, y, of the graphite material to be included in the range of 4.9 to 25 m²/g. Support for the amendment to the upper limit of claim 9 can be found at least at page 6, lines 13-17, and at page 9, lines 10-16 of the application as filed. Support for the lower limit of the amendment to claim 9 can be found at least at Examples 2 and 5 on page 34 of the specification.

Claim 9 does not embrace the surface area of 1.5 m²/g found in Yamada et al. Claim 9 therefore is not taught by Yamada. Claims 11 and 12 depend from claim 9 and are therefore not anticipated by Yamada. Thus, the rejection is traversed and withdrawal of the §102 rejection is requested.

Claims Rejections – 35 U.S.C. §103

Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over Yamada et al. (US 6,040,092). It is alleged that, although Yamada does not disclose a half width value of a Raman peak, it would have been obvious to one of ordinary skill in the art. The Office additionally states that the Raman peaks are determined by the defects present in the graphite material. Applicants disagree and respectfully traverse the rejection.

Those of ordinary skill in the art are aware that the R values of graphite corresponds to the amount of crystal defects introduced onto the surface of the graphite particles by processes

such as pulverization. Claim 10 of the instant application depends from claim 9, wherein R value (IB/IA), is 0.001 to 0.2. Further, claims 11 and 12 provide for R values of 0.001 to 0.15 and preferably 0.001 to 0.11. Those of ordinary skill in the art are also aware that the difference between R=0.2 and R=0.4 is as large as several times or more. It is therefore clear that the instant invention encompasses lithium ion secondary batteries with R values of 0.2 or lower.

Yamada discloses at column 3, line 33 that R values for uncoated graphite are not more than 0.4. Yamada also discloses that R values for carbon coated graphite is greater than 0.4 (column 3, lines 50-52). In fact, as the reference is understood, Yamada teaches that graphite with R values smaller than 0.4, even after carbon coating, does not provide for a good battery. Yamada states at column 3, lines 59-65, that "If the graphite particles have an R value smaller than 0.4 even after coated with less crystallized carbon, the crystallinity of the surface of these coated graphite particles which is still high causes propylene carbon contained in the electrolyte to decompose, and a battery having a good charge/discharge efficiency cannot be obtained." Therefore, Yamada teaches away from the Applicants' claimed invention.

In contrast, Applicants' claim 9 provides for the use of a graphite of the instant claim 9, wherein R has a maximum values of 0.2, wherein the battery has "a high capacity, rapid charge and discharge characteristics, a high flatness of charge and discharge potential, and a good cycle performance" (page 4, lines 14-18). Additionally, better results are obtained when using an amorphous carbon-coated graphitic carbonaceous material, as described on page 10, line 22, to page 11, line 4, and in Examples 10 and 11 of the application as filed.

Yamada does not teach or suggest that the use of graphite with low R values (R values of 0.2 or less) will provide a battery with improved performance. Because R values determine the shapes of the Raman peaks in graphite (Office Action page 4), Yamada does not teach or suggest the instant claim 10 graphite material wherein "Raman spectroscopic analysis using argon ion laser light with a wavelength of 5,145 Å, the half-value width of the peak existing at 1,570-1620 cm⁻¹, which is represented by a $\Delta\nu$ value, is 14 to 22." Applicants respectfully request withdrawal of this rejection.

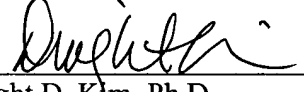
Conclusion

Thus, for at least the reasons recited *supra*, Applicants request withdrawal of the §112, §102, and §103 rejections and reconsideration of the application. In view of the above amendment, Applicant believes the pending application is in condition for allowance.

Although it is not believed that any additional fees are needed to consider this submission, the Examiner is hereby authorized to charge our deposit account no. 04-1105 should any fee be deemed necessary, under Reference No. 48699CPA2 (71360), Customer No. 21874.

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